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ABSTRACT

The New Zealand cluster of schools model using audiographics began in 1993. Canterbury Area Schools began to plan a cooperative project in that year to try to meet the various needs of their rural and urban communities. This paper describes the CASA(Tech) [Canterbury Area Schools Using Audiographics] Project in terms of administrative issues affecting schools at that time; teaching and learning issues; and why audiographics were started. Administrative issues included: difficulties in establishing the network; organizational issues; costs invoked in developing and maintaining technology; staff training; and technical support. Teaching and learning issues highlight: the impact on the professional development of teachers; course development in the network; inter-institutional cooperation; measurement of educational objectives and outcomes; evaluation planning; and benefits of using audiographics. Present and future developments in the project are also described. (AEF)

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Establishing Distance Education Networks in New Zealand: Practicalities Past, Present and Future

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This year there are five school networks currently functioning in New Zealand around the cluster of schools model with two others preparing to move in this way. The schools cluster model using audiographics began in 1993. Canterbury Area Schools began to plan a cooperative project in that year to try to meet the various needs of their rural and urban communities. The project was under way by the beginning of 1994 embracing seven schools: Akaroa, Amuri, Hawarden, Oxford and Twizel Area Schools together with Christchurch Rudolf Steiner.

The CASA(Tech) Project

1 Administrative issues affecting schools at that time

i Difficulties in establishing the network

To know that the finance was available to cover equipment, professional development, on-line time, establishment meetings and day to day running costs. At the time of setting up the Ministry grant did not cover equipment costs and a further $26.000 had to be found for equipment.

To know where to tap into existing knowledge and expertise in New Zealand.

To establish relationships with local computer firms who did not have the expertise to know, or the vision to see what was required.

First on-line lessons were often lost because of teacher inexperience and difficulties with the configuration of the bridge in Wellington.

Older telephone exchanges gave intermittent problems.

The speed of the chips in the computers was variable and the chips had to be replaced.

Light pens sent from Canada were faulty.

Manuals to assist teachers were not available.

ii Organisational issues

Common times had to be developed across schools in the network. The next step was to build a school timetable around those common times.

Coordination among site directors was a problem at times. All teachers who do this work have a full range of duties anyway and this is another additional task.

Lessons had to be much more tightly structured.

Lessons had to be fitted around sports/cultural events at more than one school.

One extra period of non-contact was necessary for on-line teachers. It takes time to scan in materials before lessons.

In administration tight controls had to be developed to control postings and faxes etc.

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iii Costs invoked in developing and maintaining technology

Some schools have been fortunate in keeping costs so far to a low level because: the equipment has been totally dedicated to audiographics; there has been sufficient expertise on the staff to "trouble shoot"; and students have been supervised when using the equipment. Some of the other schools have experienced difficulties when computers malfunctioned because the local firms had insufficient knowledge, the time delay and costs in sending the machine to the experts in Wellington were unsatisfactory.

Hidden costs have occurred when schools switched to the windows version of Vis-a-vis and then found that the RAM capacity of the machines was insufficient to cope. This had to be addressed rapidly because costs of sending graphics online soared because of the time delay.

iv Training provided for staff.

In November 1933 the first one day session was held at the Christchurch College of Education to plan the courses and examine the teaching methodology required. Formal sessions for staff mixed with a teaching program for students were held over two days in February 1994. The initial training for using the equipment was given by the firm who has supplied it. The costs of installation (at each site) and training at Oxford were much higher than expected. The handbook prepared for the project was checked by the teaching staff.

Later that term a one day course was held at College to iron out difficulties which had occurred with equipment and teaching techniques. During the year several on-line sessions were held with teachers discussing problems and also discussing with the business firm concerned scanning and bridge difficulties which had occurred.

At the end of 1994 both teachers who had experienced the network and those who were starting in 1995 met for three days at the College of Education to prepare for 1995 by providing training and to revise the handbook.

v Technical support

Technical support was very important in the early stages of the Project. This was not always easy to come by as was mentioned earlier. Distance and time delays were the factors. It became imperative in order to maintain momentum that technical support was locally and easily accessible to prevent real frustration.

2 Teaching and learning issues

i The impact on the professional development of teachers

We all learnt that this type of teaching does not suit all teaching styles. Like the students, some teachers enjoyed the medium while others found the technical difficulties combined with the intense lesson preparation required very draining. All the teachers felt that their questioning techniques improved significantly and they developed skills in "reading the students" without the assistance of body language.

ii Course development in the network

Course development is done prior to the course beginning. In the first year those teachers who were involved did not have a break over the Christmas period because of the work involved. We have failed to give enough support in this area for new teachers. We would like to do significantly more to assist them. Student choice drives the courses we offer. These are made in October/ November of the preceding year.

iii Inter-institutional cooperation

We all need to have an appreciation of the other schools in the network because we each timetable and run courses in different ways. Ensuring commonality in the project without interfering with each school's autonomy is important. In the beginning the principals met monthly to explore the issues.

iv Measurement of educational objectives and outcomes

The following techniques to evaluate student achievement and progress have been used:

- questionnaires to staff and students alike;
- individual and group interviews of classes;
- end of year results;
- teacher comments; and
- parent comments.

V Evaluation planning

The project was formally evaluated by the Ministry of Education (McKinnon report) at the of the first term 1994.

vi Benefits of using audiographics

The schools have been given a much higher profile within the communities. Students involved feel 'specials because they know that they are learning in a different way. It has given our teachers a much higher profile. Their knowledge and expertise are valued by their colleagues. As mentioned earlier those teachers have been given opportunities to enhance their skills. Visitors come to the schools to observe and learn. The above comments need to be tempered with the realisation there is still some scepticism and the general acceptance will take time.

3 Why did we start audiographics?

i. We wanted to give our students wider curriculum choice.

In 1991 and 1992 all the principals in the CASA group expressed concerns at the way curriculum provision for senior students would be provided in the future. We all felt that given small numbers particularly at years 12 and 13 the curriculum range needed to be extended in preparation for National Certificate. The conclusion we reached was that information and communication technologies had something to offer us.

Wider access to learning opportunities has been achieved for the students. All subjects which were offered at the beginning of the year have been maintained. The numbers of students involved has remained very high indeed. Three students have dropped out from courses. One in graphics and design, and two from physics. In all three cases there were problems with other school subjects as well. Thirty four students began Japanese at the beginning of the year and this has dropped to thirty one.

The final figures for 1994 were:

Year	11	Agriculture	7 students
	12	Accounting	9 students
	12	Graphics and Design	2 students
	12	Economics	14 students
	12	Physics	8 students
	13	History	8 students
	9	Japanese	31 students

Wider choice of learning opportunities has undoubtably been achieved for our students. More importantly the evaluation we have undertaken shows quite clearly that students have acquired other skills which will prove to be of enormous value to them individually. The skills of independent learning initially proved extremely frustrating for the students but have subsequently been valued by them. The seventh form history students commented that correspondence was much easier to do, all the material was given to them. With the one audiographics session each week students were required to do their own research. Lessons were focused on the work they had done and therefore they were much more exposed.

It is also important to realise that there was some vetting of students before they started the courses in the same way that is done for correspondence.

Teachers who have taught a class internally as well as audiographics remarked that assignments from on-line students were more thorough and reached a higher standard than those of the internal

class. The Japanese teacher also remarked on the quality of pronunciation of students. Again the levels of concentration have to be high. There is no body language or face to see to assist in interpretation.

ii Starting again

If we were to do this again we would not change very much. We would like to ensure that technical support and professional development was in greater evidence. In other words more time needed to be spent on induction and providing working equipment.

iiii Cost benefits of being a technology school

There were no cost benefits for us. The project absorbed more staffing and costs more than providing conventional teachers in a classroom. However, we felt that the opportunities that were for the students are paramount.

Audiographics is an expensive option at this stage. Particularly in the setting up stages. It is difficult to take large classes because the interaction is lost and the lesson merely becomes one of show and tell. The equipment is expensive as are the on-line costs. A room in the school has to be set aside for the teaching as well. (Frequently this has resulted in refurbishing with carpet and curtains to cut back the echo effect.) In addition, support must be given to the students in the school which is receiving the lessons. With younger students and larger numbers a teacher must be with them during the on-line times to make the most effective use.

Toll costs are high in New Zealand. We were fortunate to have negotiated a bulk price for two years with Telecom and this kept our costs down. During 1994 and 1995 these costs had to be found from the schools' existing operations grant.

The Present

CASA(Tech) has now enlarged to include ten schools. As the additional institutions are form one to seven schools the name has been changed to Canta(tech) to more truly represent where the schools are based. (Canterbury) Other networks have now been established in New Zealand:

Tosi(tech) which involves schools in the top halt of the South Island;
Central(tech) which has some high schools in the bottom part of the North Island.
Ngata Memorial College in the East Cape
Rangitikei College Project

Several others are in the developing stage such the Northland Project which has been funded by the Ministry of Education. (Nasatec) The enlargement of the networks has been brought about by changes in Government policy. A rural school pool has been established whereby schools can apply for funds providing they meet the necessary criteria.

For Canta(tech) schools the scope of work covered has been considerably increased with 22 classes this year on line and 182 students involved. The subject range is wide as most of them are leading to National Qualifications at years 11, 12 and 13. In addition languages are being taught at lower levels of the schools. The growth for this project is a direct result of the extra funding from the Rural Schools Pool.

The Future

Developments for Canta(tech) in 1996 and 1997 hope to include

- developing a strategic IT plan this year for Canta(tech). From this development each school will then modify its own developmental plans alongside it.
- installation of ISDN, internet and routers in all 10 schools
- strengthen staff training programmes
- use supplementary audio time for the weekly on fine lessons
- upgrade all software to the T120 compliant
- use the on line classes for accelerant classes
- extend the use of phones, modems etc throughout our schools
- upgrade hardware

- improve the ratio of preparation time for on line teachers
- network our schools with category five cable

Many of these developments will be dependent on sufficient Government funding being made available.

At a recent Area Schools Conference in Wellington Ken Steven, Senior Lecturer in Education at Victoria University spoke about the rise of a tele-Learning paradigm in our schools which supports the new era of individualised learning. The growth in New Zealand of audiographics, satellite projects and the uptake of the internet use all lend weight to his argument.